

Case Study: No-Cost and Low-Cost Lighting Improvements at Ciro's Plaza, Shanghai

Building Summary

Ciro's Plaza in Shanghai is a 52,000 square meter, 40-floor commercial office tower located in the Huang Pu district of the Shanghai Central Business District, with 4 floors of ground-level retail space. The building has been in operation since 2001.

Actions Taken

On-site building management staff from Jones Lang LaSalle (JLL) participated in an eeBuildings training on no-cost and low-cost energy efficiency measures for commercial buildings in June 2005. Following the training, they implemented a program of energy efficiency improvements. The JLL team was careful to select measures that would not impact tenant comfort, but that would both improve building operations and reduce electricity use. They undertook a series of measures, including no- and low-cost improvements to lighting levels.



The greatest immediate no-cost and low-cost energy efficiency opportunities were in common areas where lighting was required 24 hours per day, year-round, such as stairwells and the building parking garage. The leadership of the Ciro's building owner team and the JLL property management team undertook strategic lighting improvements that included de-lamping and limited low-cost lamp replacements in these spaces. Through this process, lighting levels were adjusted to more optimum levels, resulting in improved lighting for tenants and significant energy savings.

The building team carried out two sets of lighting improvements.

- ◆ **Garage Lighting De-Lamping:** The parking garage in the Ciro's Plaza includes three levels of parking. Each level includes 300 lighting fixtures, each containing two 36-Watt fluorescent lamps. The JLL team determined that lighting levels in the garage were excessive, and far exceeded optimum levels. The most cost-effective means of reducing lighting levels was a strategic de-lamping program that involved non-replacement of burned-out lamps over time. JLL organized the de-lamping so that every other fixture contained only one 36-Watt lamp, while fixtures in between were completely de-lamped. This resulted in significant savings equivalent to approximately 75% of previous electricity use, an annual reduction of 425,736 kWh.
- ◆ **Stairwell Lighting Reductions:** Ciro's Plaza contains two main stairwells serving each of the 40 floors of the building. Each level contains two lamps that operate 24 hours per day year-round for safety purposes. The JLL team was able to replace the original 14-Watt compact fluorescent lamps with 7-Watt lamps, while maintaining optimum lighting levels. This led to annual savings of approximately 9,811 kWh annually.

Results

The de-lamping program in the Ciro's Plaza garage facility resulted in a reduction of 200 lamps per level, or a total of 600 36-Watt lamps. The de-lamping process took two months to complete, and resulted in annual savings of 425,736 kWh, equivalent to approximately 340,600 RMB (US \$42,500). Additional cost savings are expected from a 75% reduction in the cost of lamp replacements.

The stairwell lighting reductions resulted in savings of 9,811 kWh annually, equivalent to approximately 7,800 RMB (US \$1,000).

In total, through these two no-cost and low-costs measures alone, JLL was able to deliver 435,547 kWh in electricity savings to the building, and reduce the building's electricity bill by 348,400 RMB annually (US \$43,500).

In addition, these reductions in electricity use over a constant 24-hour period enabled JLL to reduce peak demand at Ciro's Plaza by nearly 23 kW.

Contact Information

For more information on the eeBuildings program, to find out about upcoming trainings and events, or for general information on how to reduce building energy consumption using simple, no-cost and low-cost operational measures, go to www.epa.gov/eeBuildings or write to eeBuildings@epa.gov.